

### Multiplicación de potencias con igual base

$$\underline{a^n} \cdot \underline{a^m} = \underline{a^{n+m}}$$

Ejemplo:

$$\begin{aligned} \textcircled{1} \quad 2^3 \cdot 2^4 &= 2^{\cancel{3+4}} \\ &= 2^7 \\ &= 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \\ &= 4 \cdot 4 \cdot 4 \cdot 2 \\ &= 16 \cdot 8 \\ &= 128 \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad \left(\frac{1}{2}\right)^3 \cdot \left(\frac{1}{2}\right)^3 &= \left(\frac{1}{2}\right)^{\cancel{2+3}} \\ &= \left(\frac{1}{2}\right)^5 \\ &= \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \\ &= \boxed{\frac{1}{32}} \end{aligned}$$

Ejercicios:

Aplique propiedades de potencias y resuelva:

$$\begin{aligned} 3^3 \cdot 3^2 &= 3 \cdot 3 \cdot 3 + 3 \cdot 3 \\ &= 243 \\ \textcircled{3} \quad 3^5 &= 3 \cdot 3 \cdot 3 \cdot 3 \\ &= 243 \end{aligned}$$

Aplique propiedades:

$$\begin{aligned} 2^4 \cdot 2^3 &= 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \\ &= \boxed{128} \\ \textcircled{4) } 2^6 & \\ \textcircled{5) } 2^0 & \\ \textcircled{6) } 2^1 & \\ \textcircled{7) } 2^7 & \\ 2^4 \cdot 2^3 &= 2^{\cancel{4+3}} \\ &= 2^7 \end{aligned}$$

$$\frac{a}{b} = a : b$$

Ejercicio:

$$\left(\frac{1}{2}\right)^3 \cdot \left(\frac{1}{2}\right)^2 = \left(\frac{1}{2}\right)^{\cancel{3+2}}$$

$$= \left(\frac{1}{2}\right)^{-1} = \left(\frac{2}{1}\right)^1 = 2 : 1 = \boxed{2}$$

$$Q = \frac{121}{1} \xrightarrow{\text{cancelar}}$$

$$= \left(\frac{1}{4}\right)^2 = \frac{1}{4} \cdot \frac{1}{4} = \boxed{\frac{1}{16}}$$

$$\approx \frac{4}{1}$$

### Multiplicación de potencias con igual exponente

$$\underline{a^n} \cdot \underline{b^n} = (\underline{a} \cdot \underline{b})^n$$

Ejemplo:

$$2^3 \cdot 3^3 = (2 \cdot 3)^3$$

$$= 6^3$$

$$= 6 \cdot 6 \cdot 6$$

$$= 216 //$$

$$\left(\frac{1}{3}\right)^2 \cdot \left(\frac{1}{4}\right)^2 = \left(\frac{1}{3} \cdot \frac{1}{4}\right)^2$$

$$= \left(\frac{1}{12}\right)^2$$

$$= \frac{1}{144}$$

$$\textcircled{1) } \left(\frac{1}{3}\right)^2 \cdot \left(\frac{1}{6}\right)^2 = \left(\frac{1}{3} \cdot \frac{1}{6}\right)^2$$

$$= \left(\frac{1}{18}\right)^2$$

$$= 18^2 = 18 \cdot 18$$

$$= 324 //$$